

WHAT IS CLAIMED IS:

1. A fixing apparatus comprising:

a heating member to be rotated to fix toner images;

5 a coil which generates a high-frequency magnetic field to perform induction heating in the heating member;

10 a high-frequency wave generating circuit which operates with power supplied from a power supply and which outputs a high-frequency current to the coil for generating the high-frequency magnetic field;

15 a current-detecting unit which detects a current supplied from the power supply to the high-frequency wave generating circuit;

20 a control unit which drives the high-frequency wave generating circuit when an operation-on signal for initiating the induction heating acquires a first logic level and which stops the high-frequency wave generating circuit when the operation-on signal acquires a second logic level; and

25 a protection circuit which controls supply of the current to the high-frequency wave generating circuit in accordance with the logic level of the operation-on signal and the magnitude of the current detected by the current-detecting unit.

2. The fixing apparatus according to claim 1, wherein the control unit detects an output of the coil

from the current detected by the current-detecting unit, while the operation-on signal remains at the second logic level, and causes the high-frequency wave generating circuit to generate an output having a 5 predetermined value.

3. The fixing apparatus according to claim 3, wherein the protection circuit stops supply of the current from the power supply to the high-frequency wave generating circuit when the operation-on signal 10 acquires the second logic level.

4. The fixing apparatus according to claim 1, wherein the high-frequency wave generating circuit comprises a rectifying circuit which rectifies a voltage applied from the power supply, a capacitor 15 which is connected to the coil and constituting a resonant circuit jointly with the coil, and a switching element which excites the resonant circuit.

5. The fixing apparatus according to claim 1, wherein the current-detecting unit comprises a voltage-lowering transformer having a primary winding connected 20 to a current path of the high-frequency wave generating circuit, a rectifying circuit connected to a secondary winding of the voltage-lowering transformer and a serial circuit connected to an output terminal of the rectifying circuit and comprising a resistor and a 25 smoothing capacitor, and outputs a direct-current voltage which corresponds to a current input from the

power supply to the high-frequency wave generating circuit.

6. The fixing apparatus according to claim 1,  
wherein the protection circuit comprises a comparator  
5 which compares an output voltage of the current-  
detecting circuit with a predetermined reference  
voltage, an inverter which inverts a logic level of the  
operation-on signal, an AND circuit which receives the  
output of the inverter and the output of the  
comparator, and a switch which opens and closes a  
10 current path between the power supply and the high-  
frequency wave generating circuit in accordance with an  
output of the AND circuit.

7. The fixing apparatus according to claim 1,  
15 wherein the heating member is a hollow cylindrical  
heating roller, and the coil is provided in the heating  
roller.

8. A fixing apparatus comprising:  
heating means to be rotated to fix toner images;  
20 a coil which generates a high-frequency magnetic  
field to perform induction heating in the heating  
means;

high-frequency wave generating circuit which  
operates with power supplied from a power supply and  
25 which outputs a high-frequency current to the coil for  
generating the high-frequency magnetic field;  
current-detecting means for detecting a current

supplied from the power supply to the high-frequency wave generating means;

control unit means for driving the high-frequency wave generating means when an operation-on signal for initiating the induction heating acquires a first logic level and which stops the high-frequency wave generating means when the operation-on signal acquires a second logic level; and

protection means for controlling supply of the current to the high-frequency wave generating means in accordance with the logic level of the operation-on signal and the magnitude of the current detected by the current-detecting means.

9. The fixing apparatus according to claim 8,  
15 wherein the control means detects an output of the coil from the current detected by the current-detecting means, while the operation-on signal remains at the second logic level, and causes the high-frequency wave generating means to generate an output having a  
20 predetermined value.

10. The fixing apparatus according to claim 8,  
wherein the protection means stops supply of the current from the power supply to the high-frequency wave generating means when the operation-on signal  
25 acquires the second logic level.

11. The fixing apparatus according to claim 8,  
wherein the high-frequency wave generating means

comprises a rectifying circuit which rectifies a voltage applied from the power supply, a capacitor which is connected to the coil and constituting a resonant circuit jointly with the coil, and a switching element which excites the resonant circuit.

12. The fixing apparatus according to claim 8, wherein the current-detecting means comprises a voltage-lowering transformer having a primary winding connected to a current path of the high-frequency wave generating circuit, a rectifying circuit connected to a secondary winding of the voltage-lowering transformer and a serial circuit connected to an output terminal of the rectifying circuit and comprising a resistor and a smoothing capacitor, and outputs a direct-current voltage which corresponds to a current input from the power supply to the high-frequency wave generating means.

13. The fixing apparatus according to claim 8, wherein the protection means comprises a comparator which compares an output voltage of the current-detecting means with a predetermined reference voltage, an inverter which inverts a logic level of the operation-on signal, an AND circuit which receives the output of the inverter and the output of the comparator, and a switch which opens and closes a current path between the power supply and the high-frequency wave generating means in accordance with an

output of the AND circuit.

14. The fixing apparatus according to claim 8,  
wherein the heating means is a hollow cylindrical  
heating roller, and the coil is provided in the heating  
5 roller.